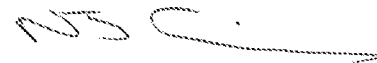


UNITED STATES PATENT AND TRADEMARK OFFICE

I, Neil Thomas SIMPKIN BA,

Deputy Managing Director of RWS Group Ltd UK Translation Division, of Europa House, Chiltern Park, Chiltern Hill, Chalfont St Peter, Buckinghamshire, United Kingdom, declare;

1. That I am a citizen of the United Kingdom of Great Britain and Northern Ireland.
2. That the translator responsible for the attached translation is well acquainted with the Japanese and English languages.
3. That the attached is, to the best of RWS Group Ltd knowledge and belief, a true translation into the English language of the accompanying copy of the specification filed with the application for a patent in Japan on March 10, 2004 under the number JP2004-066675 and the official certificate attached thereto.
4. That I believe that all statements made herein of my own knowledge are true and that all statements made on information and belief are true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the patent application in the United States of America or any patent issuing thereon.



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For and on behalf of RWS Group Ltd

The 26th day of September 2011

**JAPAN PATENT OFFICE**

This is to certify that the annexed is a true copy of the following application as filed  
5 with this office.

Date of Application: 10<sup>th</sup> March 2004

10 Application No.: Patent Application 2004-066675

The country code and number  
of your priority application  
to be used for filing abroad

15 under the Paris Convention is: JP2004-066675

Applicant(s): Syngenta Japan K.K.  
Izutsuya Chemical Industry Co., Ltd.

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25

20<sup>th</sup> July 2011

30 Commissioner, Japan Patent Office: Yoshiyuki Iwai (as a signature and seal)

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	[List of Items Filed]		
	[Item Name]	Scope of the Patent Claims	1 copy
	[Item Name]	Specification	1 copy
5	[Item Name]	Abstract	1 copy

[Document Title]

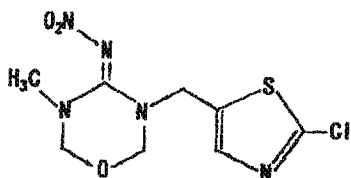
Scope of the Patent Claims

[Claim 1]

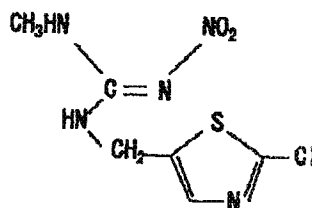
- 5 Tree-trunk injectable ant-controlling agent, characterized in that it contains a neonicotinoid-based compound as the effective component for killing ants, a solvent which is miscible with water and a surfactant.

[Claim 2]

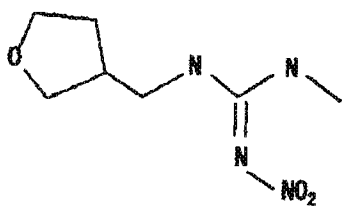
- 10 Tree-truck injectable ant-controlling agent according to Claim 1, characterized in that the neonicotinoid-based compound is thiamethoxam, clothianidin, dinotefuran or acetamiprid which can be represented by the structural formulae indicated below.



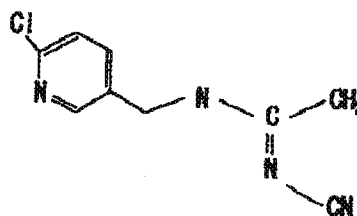
Thiamethoxam



Clothianidin



Dinotefuran



Acetamiprid

15

[Claim 3]

Tree-truck injectable ant-controlling agent according to Claim 1 or Claim 2, characterized in that the aforementioned solvent which is miscible with water is of at least one type selected from among the group comprising the lower alcohols, glycols

and derivatives thereof, ethers, ketones, esters, sulfoxides, nitriles, pyrrolidones, glycerines and amides.

[Claim 4]

- 5           Tree-trunk injectable ant-controlling agent according to any of Claims 1 to 3, characterized in that the aforementioned surfactant is of at least one type selected from among the group comprising the polyoxyalkylene hardened castor oils, polyoxyethylene alkyl ethers, polyoxyethylene polyoxypropylene alkyl ethers, polyoxyethylene sorbitan fatty acid esters, polyoxyethylene sorbitol fatty acid esters,  
10 polyglycerine fatty acid esters, sucrose fatty acid esters, polyoxyalkylene (poly)styrenated phenols, polyoxyalkylene (poly)styrenated cresols, and the sulfuric acid esters or phosphoric acid esters of these or salts of these.

[Claim 5]

- 15           Method for the treatment of timber for ant-controlling purposes, characterized in that a tree-trunk injectable ant-controlling agent according to any of Claims 1 to 4 is injected into the trunk of a live standing tree and translocated within the body of the tree.

20   [Claim 6]

Timber protected against ants which does not require ant-controlling treatment after being formed into sawn timber, characterized in that it has been treated with the method of Claim 5.

[Document Title]

Specification

[Title of the Invention]

5 A tree-trunk injectable ant-controlling agent and a method of treatment  
therewith

[Technical Field]

[0001]

10 The present invention concerns a tree-trunk injectable ant-controlling agent  
which has a neonicotinoid-based compound as the effective component, a method of  
treatment therewith and timber which is protected against ants and which does not  
need an ant-controlling treatment after being made into sawn timber which has been  
obtained by this method.

[Background Technology]

[0002]

15 Some twenty types of termite, such as the yamato termite (*Reticulitermes*  
*setaratus*) and house termite (*Coptotermes formosanus*), are found in Japan and the  
damage done to wooden buildings by these termites is so serious that it is referred to  
as "fire without flames". Since timber is used as the structural material in the  
wooden panel construction method traditionally used for buildings in Japan and in  
20 the framework wall building method which is used in North America, if any termite  
damage occurs then the damage may be such that rebuilding is required. Even in  
those cases where a steel frame or ferro-concrete has been used for the structural  
material, timber is often used for the interior walls and interior decoration and many  
cases of termite damage to these timbers have also been reported.

25 [0003]

In the regions of Kyushu, Shikoku, Kansai, Tokai and the Hiroshima region  
where house termites are found the dispersal of insecticides on the ground and onto  
the timber parts less 1 m or less from the ground is essential for protection against  
termites when building with sawn timber. Furthermore, a reproofing treatment with  
30 the dispersal of chemicals on the under-floor soil and the timber parts must be carried  
out every 3 to 5 years.

[0004]

Termite damage often occurs in locations which are difficult to see, such as within the structural material or under the floor or inside the walls for example, and very often it is difficult to exterminate termites in such places.

[0005]

5        Chemical treatment of the timber used is carried out using various methods in order to protect buildings from termite damage, but each method of treatment has its advantages and disadvantages in respect of the operational efficiency of the chemical treatment, limitations due to the physical nature of the chemical agent and problems with toxicity in respect of the operator and the environment.

10      [0006]

      Methods such as 1) injecting the trunks of standing trees, 2) chemical treatment of the cut ends of felled trees, 3) coating or spraying chemicals onto the timber, 4) immersing the timber in chemicals and 5) injecting chemicals into the timber under pressure and the like have been used as treatments for proofing the  
15      timber which is used for building purposes against rot and ants.

[0007]

      Injecting the trunks of standing trees is a simple method but it is little used at the present time since the treatment efficiency is poor in that it takes a long time to inject a large quantity of chemical solution to treat a single tree and because of the  
20      need for water-soluble chemical agents.

[0008]

      Water-head injection methods are generally used for the chemical treatment of the cut end of a felled tree, and these include the Boucherie method in which the cut round end surface of the green wood with the bark still attached immediately  
25      after felling is connected to a chemical solution tank which is located in a higher position and the chemical agent is injected by the pressure generated by the water-head, and the method in which the bark is peeled away for about 10 cm on the round end of the green wood with the bark attached, one end of a tire tube is fitted over this and firmly bound to the log with steel wire or a rubber band for example, the  
30      chemical solution is introduced into the tube from the other end and then left to stand with the cut round end of the log steeply inclined. Again, these methods are hardly used at all for the same reasons as with the abovementioned method of injecting the trunks of standing trees.

[0009]

The method of coating or spraying a chemical solution onto timber is the most generally used method of treatment for the control of rot and ants and the treatment is usually carried out on the house construction site. This is a method in which a chemical agent where an emulsion or wettable powder which contains an component for controlling rot or ants has been diluted with water or an ant-controlling component has been diluted with kerosene is coated on the timber with a brush or sprayed-on with a sprayer. However, this method is time-consuming and uneven coating or spraying may arise and the application of the chemical agent is limited to just the surface and does not permeate satisfactorily into the timber, and there is a further problem in that damage due to the micro-organisms which cause rotting or invasion by termites may arise through the parts where little or no chemical has been applied. Furthermore, the chemical agent is spread beyond the intended timber when spraying is used and so there is also a problem with environmental pollution.

[0010]

The method in which timber is immersed in a chemical solution certainly enables the chemical agent to permeate into the timber to a greater extent than with the coating or spraying referred to above, but here there is a problem in that a large immersion tank and a large amount of chemical solution must be prepared so that the timber which is being treated can be immersed completely.

[0011]

The method in which a chemical agent is injected into timber under pressure enables chemical treatment to be carried out positively and into the interior of the timber in a short period of time, but there are problems in that apparatus is required to apply the pressure, a large quantity of chemical solution is required in the same way as with the immersion method, and a means for preventing the occurrence of pollution when treating the waste chemical solution after treatment is required. CCA (chromium copper arsenic) compound based chemicals and the like which control both rot and ants can be used for the chemical agent, but treatment with this method is declining rapidly for the reasons mentioned above.

[0012]

As indicated above, there are many methods for treating timber for controlling ants, but problems are associated with all of these methods and so at the present time treatment is being carried out by selecting the method which is thought to be the best depending on the individual circumstances. Among these methods the  
5 tree-trunk injection treatment of a live standing tree is simple and easy to use but it is necessary to inject a large quantity of the chemical agent and this takes a long time and so it is hardly ever carried out at the present time from the viewpoint of the treatment efficiency. However, if there was an effective component or preparation such that treatment with a small amount of chemical agent could be achieved in a  
10 short period of time then it is thought that this would be used widely.

[Disclosure of the Invention]

[Problems to be Resolved by the Invention]

[0013]

The present invention was devised on the basis of an understanding of the  
15 state of such prior art and is intended to provide a tree-trunk injectable ant-controlling agent which has a neonicotinoid-based compound as the effective component and with which treatment with a small amount of chemical agent can be achieved in short period of time, a method for the treatment of timber with this agent and also timber which has been obtained using this method.

20 [Means of Resolving This Problem]

[0014]

As a result of a thorough investigation carried out with a view to realizing  
theses aims, the inventors have discovered tree-trunk injectable agents which have neonicotinoid-based compounds as effective components which provide excellent  
25 treatment efficiency, and the invention is based upon this discovery.

[0015]

Neonicotinoid-based compounds are known to be very effective for killing  
ants, have a low toxicity in man and hardly evaporate at all into the atmosphere, and some of these compounds have been put into practical use as termites-controlling  
30 agents. However, neonicotinoid-based compounds are virtually insoluble in water or dissolve in only trace amounts and so they are almost always used in preparations of the wettable powder type. It has been discovered that with this invention timber which has been treated with an ant-controlling agent can be obtained with a

composition which contains neonicotinoid-based compound, solvent which is miscible with water and surfactant by simply injecting this into a tree-trunk and translocating the composition within the body of the tree.

[0016]

5        That is to say, the present invention is a tree-trunk injectable ant-controlling agent which is characterized in that it contains a neonicotinoid-based compound (for example thiamethoxam, clothianidin, dinotefuran, acetamiprid) as the effective component for killing ants, a solvent which is miscible with water and a surfactant.

10       Furthermore, the invention is a method for the treatment of timber for protection against ants in which such a tree-trunk injectable ant-controlling agent is injected into the trunk of a live standing tree and translocated within the body of the tree.

15       Furthermore, the invention is timber which has been protected against ants with which no treatment for ant control is required after obtaining sawn timber which has been treated with such a method.

[Embodiment of the Invention]

[0017]

20       The tree-trunk injectable ant-controlling agents of this invention are characterized in that they contain (1) neonicotinoid-based compound as the effective component for killing ants, (2) solvent which is miscible with water and (3) surfactant.

[0018]

25       Nitenpyram and the like can be cited as well as thiamethoxam, clothianidin, dinotefuran and acetamiprid as the neonicotinoid-based compounds which are used in a tree-trunk injectable agent of this invention. The effective component for killing ants in a tree-trunk injectable agent of this invention may include, in addition to the neonicotinoid-based compound, organophosphorus-based insecticides such as acephate, fenitrothion, ethylthiometon, diazenon and the like, synthetic pyrethroid-based insecticides such as permethrin, etofenprox, silafluofen and the like, and  
30       carbamate-based insecticides such as oxamyl, methomyl, benfuracarb and the like. Furthermore, disinfectants for controlling rot can also be used in admixture with the aforementioned effective component.

[0019]

Solvents which are readily miscible with water are preferred for the solvent which is used in the tree-trunk injectable agents of this invention, and examples include lower alcohols such as methanol, ethanol and the like, ethers such as dioxane, tetrahydrofuran and the like, ketones such as acetone, methyl ethyl ketone, cyclohexanone and the like, esters such as ethyl acetate, butyl acetate and the like, sulfoxides such as dimethylsulfoxide and the like, nitriles such as acetonitrile and the like, pyrrolidones such as N-methylpyrrolidone, N-ethylpyrrolidone and the like, amides such as N,N-dimethylformamide and the like, and glycols such as ethylene glycol, propylene glycol, diethylene glycol and the like and esters and ethers thereof.

10 [0020]

The surfactants which are used in a tree-trunk injectable agent of this invention may be, for example, anionic surfactants such as alkyl sulfuric acid esters, alkane sulfonic acids, alkylbenzene sulfonic acids, alkyl phosphoric acid esters, N-acyl sarcosinates, N-acylalanine salts and succinic acid salts, cationic surfactants such as alkylamines, alkyltrimethylammonium salts, dialkyldimethylammonium salts, alkylmethylbenzylammonium salts and alkylpyridinium salts, and non-ionic surfactants such as polyoxyethylene castor oils, polyoxyethylene hardened castor oils, polyoxyethylene alkyl ethers, polyoxyethylene alkylphenyl ethers, polyoxyethylene alkylphenyl ether formaldehyde condensates, polyoxyethylene allylphenyl ethers, polyoxyethylene allylphenyl ether formaldehyde condensates, polyoxyethylene glycol fatty acid esters, polyoxyalkylene alkyl ethers, sorbitan fatty acid esters, polyoxyethylene sorbitan fatty acid esters, polyoxyethylene sorbitol fatty acid esters, polyglycerine fatty acid esters, sucrose fatty acid esters and propylene glycol mono-fatty acid esters.

25 [0021]

From among these surfactants the nonionic surfactants alone or mixtures of these with anionic surfactants are generally used. From among the non-ionic surfactants the polyoxyethylene hardened castor oils, polyoxyethylene alkyl ethers, polyoxyalkylene alkyl ethers, polyoxyethylene allylphenyl ethers and polyoxyethylene sorbitan fatty acid esters are ideal.

30 [0022]

If the viscosity of the tree-trunk injectable agent which is used is high then it cannot be injected into a tree and so generally the use of solvents and surfactants of

low viscosity is preferred. A tree-trunk injectable agent with which no turbidity or precipitation arises on dilution with water and with a preparation viscosity (B-type viscometer) of not more than 4.0 cP which allows rapid injection into a tree-trunk is preferred.

5 [0023]

The amount of each component in a tree-trunk injectable agent of this invention can be changed appropriately, but some 0.1 to 20 wt%, and preferably some 1 to 10 wt%, of the effective component, some 30 to 90 wt%, and preferably some 40 to 70 wt%, of solvent and some 0 to 20 wt%, and preferably some 0 to 10 wt%, of surfactant can be included.

[0024]

A tree-trunk injectable agent of this invention is prepared by dissolving each of these components uniformly. The method of preparation involves mixing and dissolving the whole amounts using a stirrer in a tank of an appropriate size.

15 [0025]

The application of a tree-trunk injectable agent of this invention to a tree is carried out by making a hole with drill for example at a position lower than the part of the tree-trunk which is to be felled and injecting the tree-trunk injectable agent of this invention, which is contained in a suitable container, either naturally or under pressure. The amount applied varies according to the effective component content of the preparation and the timber volume of the tree, but in the case of a preparation which contains from 3 to 5 wt% of the effective component the amount applied is from 100 to 1,000 ml, and preferably from 200 to 600 ml, per 1 m<sup>3</sup> of timber volume. Furthermore, the injection of an agent into a tree-trunk is preferably carried out from at least two locations, and preferably from two to five locations, to achieve more uniform dispersion within the tree trunk.

[Illustrative Examples]

[0026]

The details of the invention are described in more practical terms below by means of illustrative examples, but the invention is not limited by these illustrative examples.

[0027]

### Example 1 Injectable Preparation Formulations

5 Examples of tree-trunk injectable agent formulations which have thiamethoxam which is a neonicotinoid-based compound as the effective component for killing ants are shown in Table 1.

[0028]

[Table 1]

**Table 1 Injectable Preparation Formulations**

Formulation No.	1	2	3	4	5	6	7	8	9	10
Primary Thiamethoxam	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Cyclohexanol										30.0
Diethylene glycol	30.0									
Cyclohexanone		30.0			20.0	20.0	20.0	20.0	20.0	
N-Methylpyrrolidone			30.0							
N,N-Dimethylformamide				30.0						
Acetone	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Methanol	31.0	31.0	31.0	31.0	41.0	41.0	41.0	41.0	41.0	31.0
Water	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
NK100 <sup>1)</sup>	10.0	10.0	10.0	10.0						
NK135 <sup>2)</sup>					10.0			7.0	7.0	10.0
NK1372 <sup>3)</sup>						10.0				
NK1548 <sup>4)</sup>							10.0			
NK41C <sup>5)</sup>								3.0		
NK41B <sup>6)</sup>									3.0	
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

- 10 Notes: 1) Polyoxyethylene hardened castor oil  
 2) Polyoxyethylene styrylphenyl ether  
 3) Polyoxyethylene nonylphenyl ether  
 4) Polyoxyethylene oleyl ether  
 5) Calcium alkylbenzenesulfonate  
 15 6) Sodium alkylbenzenesulfonate

[0029]

### Example 2 Injection into Trees

20 Tree-trunk injection into 20 to 40 year old pine trees of the preparation of formulation No.9 from among the formulations shown in Example 1 was carried out at a position 30 cm above the ground in such ways as to introduce 200ml, 400 ml or 600 ml per 1 m<sup>3</sup> of timber volume. The injections were carried out in three trees with each amount injected at both natural pressure and with pressure applied. Furthermore, tree-trunk injection of about 30 year old Japanese cedar trees was  
 25 carried out in the same way as with the pine trees. The results of injecting the chemical agent into pine trees and Japanese cedar trees are shown in Table 2 and Table 3.

[0030]

[Table 2]

**Table 2 Injection of the Chemical Agent into Live Standing Pine Trees**

Amount Injected per 1 m <sup>3</sup>	Chest Height Diameter cm	Tree Height m	Timber Volume m <sup>3</sup>	Amount Injected ml	Number of Injection Holes	Injection Method	Injection Time minutes
200 ml	18	12	0.16	32	1	Natural pressure	45
	22	14	0.26	52	2	Natural Pressure	30
	25	18	0.4	80	2	Natural Pressure	45
	20	12	0.19	38	1	Pressure Applied	15
	25	15	0.3	60	2	Pressure Applied	12
	25	18	0.4	80	2	Pressure Applied	20
400 ml	20	13	0.2	80	2	Natural pressure	55
	22	16	0.29	116	2	Natural Pressure	70
	28	20	0.54	216	3	Natural Pressure	70
	18	13	0.17	68	2	Pressure Applied	15
	20	15	0.23	92	2	Pressure Applied	25
	24	18	0.39	156	3	Pressure Applied	40
600 ml	20	12	0.19	114	2	Natural pressure	70
	25	15	0.3	180	3	Natural Pressure	60
	29	20	0.58	348	5	Natural Pressure	90
	19	11	0.16	96	2	Pressure Applied	25
	23	13	0.26	156	3	Pressure Applied	25
	27	15	0.39	234	4	Pressure Applied	40

5

The injections were carried out with the chemical agent divided equally between the holes.  
Pressure applied signifies that the chemical agent was introduced into a special pressure container and pressure was applied using gas.

[0013]

[Table 3]

**Table 3 Injection of the Chemical Agent into Live Standing Japanese Cedar Trees**

Amount Injected per 1 m <sup>3</sup>	Chest Height Diameter cm	Tree Height m	Timber Volume m <sup>3</sup>	Amount Injected ml	Number of Injection Holes	Injection Method	Injection Time minutes
200 ml	19	14	0.2	40	2	Natural pressure	25
	20	15	0.23	46	2	Natural Pressure	33
	20	15	0.23	46	2	Natural Pressure	35
	20	14	0.22	44	2	Pressure Applied	12
	20	15	0.23	46	2	Pressure Applied	15
	22	15	0.28	56	2	Pressure Applied	18
400 ml	20	14	0.22	88	2	Natural pressure	50
	20	14	0.22	88	2	Natural Pressure	55
	22	15	0.28	112	2	Natural Pressure	65
	20	14	0.22	88	2	Pressure Applied	25
	20	14	0.22	88	2	Pressure Applied	25
	21	15	0.25	100	2	Pressure Applied	30
600 ml	20	14	0.22	132	2	Natural pressure	75
	20	14	0.22	132	2	Natural Pressure	80
	22	15	0.28	168	3	Natural Pressure	60
	20	14	0.22	132	2	Pressure Applied	35
	22	14	0.26	156	3	Pressure Applied	30
	22	15	0.28	168	3	Pressure Applied	35

The injections were carried out with the chemical agent divided equally between the holes.  
Pressure applied signifies that the chemical agent was introduced into a special pressure container and pressure was applied using gas.

[0032]

As shown in Tables 2 and 3 it was possible to inject from 200 to 600 ml of the chemical agent per 1 m<sup>3</sup> smoothly into both pine trees and Japanese cedar trees.

- 5 With the pine trees the injection could be completed in from 30 to 90 minutes with natural pressure and in from 12 to 40 minutes when pressure was applied, and with the Japanese cedar trees the injection could be completed in from 25 to 80 minutes with natural pressure and in from 12 to 35 minutes when pressure was applied.

[0033]

10 **Example 3 Ant-Controlling Effect in the Tree-trunk Injection Treated Timber**

- In order to allow the chemical agent to diffuse into the whole of the trunk of each pine tree and Japanese cedar tree treated in Example 2 the trees were left standing for 3 months after the chemical agent had been injected. After 3 months one test tree from each test area was selected appropriately and felled at a point 50  
15 cm above the ground. The tree was allowed to dry naturally in the shade for 3 months and a circular disk of thickness 2 cm was cut out of the dried timber every 1 m from the cut end up to 4 m and wood sample blocks measuring 2 cm x 2 cm x 2 cm were obtained from these. Sterilized and disinfected sand which included a suitable amount of moisture was placed in the bottom of a glass container of  
20 diameter 13 cm and height 3 cm and a wood sample block was placed on top of the sand. Then 90 worker house termites and 10 soldier house termites were introduced into the glass container in which the wood sample block had been placed and raised for 4 weeks in a constant temperature vessel at a temperature of 25°C and the survival or otherwise of the house termites and the state of damage (loss in weight)  
25 suffered by the wood sample block were investigated. The results are shown in Tables 4 and 5.

[0034]

[Table 4]

**Table 4 Ant-controlling Effect of the Pine Tree-trunk Injected Timber**

Per m <sup>3</sup> Amount Injected	Method of Injection	Location from which the Sample had been Taken							
		1 m		2 m		3 m		4 m	
		Number of Survivors	Weight Loss	Number of Survivors	Weight Loss	Number of Survivors	Weight Loss	Number of Survivors	Weight Loss
200 ml	Natural Pressure	0	0.2	0	0	0	0	0	0
	Pressure Applied	0	0	0	0.1	0	0	0	0
400 ml	Natural Pressure	0	0	0	0	0	0	0	0
	Pressure Applied	0	0.1	0	0	0	0	0	0
600 ml	Natural Pressure	0	0	0	0	0	0	0	0
	Pressure Applied	0	0	0	0	0	0	0	0
Control		91	224	96	291	92	243	90	240

The number of survivors is the number of termites and the weight loss is shown in mg.  
Each test was carried out in triplicate and the values shown are the average values  
The control was untreated pine

5

[0035]

[Table 5]

**Table 5 Ant-controlling Effect of the Japanese Cedar Tree-trunk Injected Timber**

Per m <sup>3</sup> Amount Injected	Method of Injection	Location from which the Sample had been Taken							
		1 m		2 m		3 m		4 m	
		Number of Survivors	Weight Loss	Number of Survivors	Weight Loss	Number of Survivors	Weight Loss	Number of Survivors	Weight Loss
200 ml	Natural Pressure	0	0	0	0	0	0	0	0
	Pressure Applied	0	0.1	0	0.1	0	0	0	0
400 ml	Natural Pressure	0	0	0	0	0	0	0	0
	Pressure Applied	0	0	0	0	0	0	0	0
600 ml	Natural Pressure	0	0	0	0	0	0	0	0
	Pressure Applied	0	0	0	0	0	0	0	0
Control		88	176	86	153	91	201	88	177

The number of survivors is the number of termites and the weight loss is shown in mg.  
Each test was carried out in triplicate and the values shown are the average values  
The control was untreated Japanese cedar

10

[0036]

15 As shown in Tables 4 and 5, no house termites survived with the pine or Japanese cedar which had been treated with the chemical agent with either method of injection and any of the amounts injected, and virtually no loss in weight due to pest damage of the wood sample blocks was observed.

[0037]

20 The present invention enables timber which is very resistant to ants and which does not need to be subjected to an ant-controlling treatment on site to be obtained by injecting a tree-trunk injectable agent which contains a neonicotinoid-based compound into the trunk of a live standing tree instead of treating the timber with an ant-controlling agent by coating or spraying on the construction site as was  
25 done in the past.

Furthermore by using timber which has been treated in accordance with the present invention there is no pollution of the environment with the chemical agent since there is no need to treat the timber by coating or spraying with an ant-controlling agent at the construction site. Furthermore, a long-lasting effect can be  
5 anticipated since the chemical agent is dispersed within the timber.

[Document Title]

Abstract

[Abstract]

5 A tree-trunk injectable ant-controlling agent which is characterized by a  
neonicotinoid-based compound as the effective component for killing ants, a solvent  
which is miscible with water and surfactant. A method for treating timber for  
protection against ants in which such a tree-trunk injectable ant-controlling agent is  
injected into the trunk of a live standing tree and translocated within the body of the  
tree. Timber which is protected against ants and which does not need an ant-  
10 controlling treatment after treated sawn timber has been produced with such a  
method.

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